



amateur radio

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AUGUST
1966

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25c

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FEDERAL COMMENT

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One important characteristic of an Australian is his capacity for survival.

Self help is the most reliable kind of help. With it a natural flair for improvising, making use of available materials, can turn a failure into a victory.

There is a tendency for today's Australians to follow a world fashion which dictates—"Don't fix it. Get a new one." This may be all right while the supply of "new ones" continues, but for a long while there will be many times and places in Australia with no guaranteed supply.

Knowing how to fix it with laboratory equipment available is one thing. Doing it in the field on the ground under a tent, while it is raining maybe, is a totally different task.

Field days seem a long way off at this time of year, but need they be? Should they be?

A field day as well as being an interesting excursion has a serious background. It develops that essential "know-how" which can deal with emergencies under "far-from-laboratory" conditions.

Emergencies do not, as a rule, choose to occur under perfect weather conditions. Preparation months ahead is time well spent even for summer field days.

There is no better time to ask yourself the following question than before a field day: "If the rig fails while I am 'portable' have I any hope of fixing it, or will I just pack up the little black box and go home?"

Are you an independent or a dependant? How well are you equipped in the self-help department?

L. A. SEEDSMAN.

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A Transistorised Amateur Band Receiver

PART ONE

HAROLD L. HEPBURN,* VK3AFQ

PROLOGUE

A few months ago the Moorabbin and District Radio Club felt that a constructional project should be undertaken as a means of providing additional interest for its members.

At a meeting held to discuss the proposition it was obvious that keen interest existed in such a project and that it should involve the use of transistors. Few club members had done any constructional work with semi-conductors so that a "transistorised" project would also have some additional educational benefits. Ideas as to what should be made were many and varied, just about every bit of equipment known to Hamdom being suggested at one stage or another.

After more discussion and consideration at committee level it was decided to build a communications receiver. It was realised that this would be a rather ambitious entry into the world of semi-conductors but in spite of the obvious problems involved it was felt that a transistorised receiver had several advantages.

(1) A receiver has a much wider appeal than other, less complex, equipment such as signal tracers, oscillators, etc.

(2) Club members have always been keen on 80 metre transmitter hunts but of recent years there has often been more spectators than hunters due to the lack of equipment suitable for mobile or portable use.

(3) A single band h.f. receiver would be a good basic unit from which, and by the addition of, say, converters, other h.f. and v.h.f. bands could be explored.

(4) Since a very large proportion of club members are also active in the Victorian W.I.C.E.N. organisation it was felt that a transistorised receiver would meet a long unfulfilled need for a very low drain unit. Since the major use for h.f. in Victoria has been "watch-keeping" a low drain receiver is obligatory.

(5) Since at least one club member had already built a prototype transistorised single sideband generator for the 3.5 Mc. band, the possibility, at a later stage, of combining the two into a complete portable transistorised rig was most attractive.

RECEIVER SPECIFICATIONS

The general specification of the receiver as it finally emerged is as follows:—

1. Capable of operation on any d.c. supply between 14 volts and 9 volts, thus allowing either mobile or portable use.

2. Circuitry is floating with respect to d.c., thus allowing use in either positive or negative earthed vehicles.
3. Low current drain—30-35 mA. quiescent, rising to over 60 mA. at maximum audio.
4. 250/300 mW. output.
5. Sensitive and capable of excellent performance on a.m., s.s.b. or c.w.
6. Provision made for the later addition of a mechanical or ceramic filter if required.
7. Tunes either 3.5-4.1 mcs. or 2.5-4.1 mcs.
8. Capable of being used as a tuneable i.f. in conjunction with either h.f. or v.h.f. converters.
9. Contained in an all-metal cabinet 4 in. high by 10½ in. wide by 7½ in. deep. Only about half the internal volume of this case is used by the receiver so that there will be ample room at a later date to add converters, sideband generator or what have you.

of design more usual in Amateur circles. It meant that it should be possible for everyone to build to the same design in the same way and obtain the same result. Junk box parts (unless they fitted the component specification exactly) were not used and modifications to suit the bits and pieces that participants might have were ruled out. Pretty obviously if thirty people each wanted a different "mod" the organisers would have thirty sets of problems to iron out, not just one set!

To spread the cost of the finished unit it was designed and constructed in five sections. Each section was paid for, made and tested before the next stage was started.

The sections, in the order of construction, were:

1. Audio amplifier.
2. B.f.o. and cabinet.
3. I.f. strip, detectors and a.g.c. circuitry.
4. Local oscillator.
5. R.f. and mixer stages.

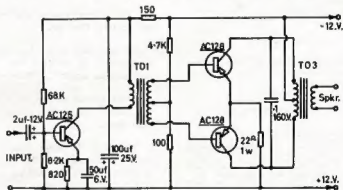


FIG. 1.
All resistors are ½ watt except where otherwise marked. The driver and output transformers specified are made by A. & R., while the condenser across the primary of the output transformer is a polyester type. The quiescent current of the unit is 3 mA. at 12 volts.

10. Calibrated dial and a double speed 8/1 or 36/1 reduction drive which has proved to be more than adequate for s.s.b. on the h.f. bands.
11. Uses 12 locally available transistors and three diodes.
12. Voltage regulation on all but the audio stages.
13. Sectionalised for simple stage by stage construction.
14. Uses parts freely obtainable in VK.

Since over thirty members were each interested in building a receiver the problems associated with large-scale production (such as parts procurement and reproducibility) were added to those encountered in the "one off" type

The cabinet was included in Stage 2 since the cost of the b.f.o. on its own was much lower than the other four sections.

The Moorabbin Club premises are not set up as a workshop capable of handling a large number of people so that a detailed set of instructions was prepared for each section and the actual constructional work was done by each participant in his own shack. This also avoided the problem of picking a series of constructional nights suitable to all participants.

At the start of the project three people—Neil Trainor (VK3ZRT), Bob Jordan (VK3AKJ) and the writer—each built a prototype and these early models used to develop the final cir-

*4 Elizabeth St., East Brighton, Vic.

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PT18M (UR57) co-axial cable, per yd. \$0.55
RG58AU (507) ohm co-axial cable, per yd. \$0.55
PT19M (UR57) 75 ohm co-axial cable,
per yd. --- \$0.55

PT11M to ohm co-axial cable, per yd. \$0.55
FORMULA 11 open wire 300 ohm trans-
mission line, 100 ft. coils --- \$3.00

GELOSO V.F.O.

Model 4/104 V.F.O. Unit. Tuning 80, 40, 20,
15, 11 and 10 metres. Uses 6CL6 and 6X5
valves. Price (valves extra), \$24.00.
Model 4/103 V.F.O. Unit. Tuning 80, 40, 20,
15 and 10 metres. Uses 6J50, 6AC5 and
6L6 valves. Price (valves extra), \$24.00.
Prices include Sales Tax.

4/105 Crystal controlled Beat Frequency
Oscillator (valves extra), Price \$25.
Notes on Circuit Application of Geloso
V.F.O. Units available upon request.
All Geloso V.F.O. Units are supplied com-
plete with calibrated dial, pointer and
periscope eyepiece.

PI-COUPLES

WILLIS MEDIUM POWER TYPE
For use up to 600 watts p.e.p. Match plate
loads of 2,500 to 3,500 ohms (2) and higher
into co-axial cable. Operating Q increases
on higher frequencies to increase harmonic
suppression enabling practical values of
tuning capacity to be used on 10 and 15
metres and above. Inductance (L). Incorporates extra switch section for
shunting additional capacity (C) if re-
quired, or switching out circuits. Switch
ratio for 10 mps. at 2,000 volts with con-
tact resistance (R) of 0.5 milli-ohms.
Price: \$7.50 (inc. S.T.)

WILLIS PI-COUPLE CHOKE
To suit above Pi-Coupler. No resonances
within Amateur bands if spaced diameter
or more from metal panels. Stands 8 inches
high on 1 inch diam. ceramic former. Base
mounting bracket included.
Price: \$5.50 (inc. S.T.)

GELOSO PI-COUPLES
Type 4/111 for use with parallel tubes type
5840, 607s, etc.
Type 4/112 for use with single ended tubes
type 6045, 607, etc.

Both Types Price: \$3.50 (inc. S.T.)

EDDYSTONE 350 pF. CONDENSERS
Type 31T condenser, suitable for use with
input of all above Pi-Couplers. Rated 1,500
volts r.m.s., ceramic insulation, fit space
2 inches square by 2 1/4 inches deep. (Output
condenser normal small two or three gang
b.c. condenser.)
Price: \$4.50 (inc. S.T.)

DUCON 28 KV. CERAMIC COUPLING
CONDENSERS, 500 pF.
Price: \$1.50 (inc. S.T.)

Please allow for Freight
when Ordering

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AIR-WOUND INDUCTANCES

No.	Diam. No. Inch	Turns Inch	Length Inch	B. & W. Equiv.	Price
1-08	1/8	0	3	No. 3052	82c
1-16	1/8	16	3	No. 3053	82c
3-08	3/8	0	3	No. 3056	82c
3-16	3/8	16	3	No. 3057	82c
3-08	3/8	0	3	No. 3010	72c
3-16	3/8	16	3	No. 3011	72c
4-08	1	0	3	No. 3014	84c
4-16	1	16	3	No. 3015	84c
5-08	1 1/4	0	4	No. 3018	\$1.05
5-16	1 1/4	16	4	No. 3019	\$1.05
8-10	2	10	4	No. 3067	\$1.38

Special Antenna All-Band Taper Inductance
(equivalent to B. & W. No. 3007 T in.)
T in. length, 2 in. diameter, 16 turns per
inch, \$2.45

References: A.R.R.L. Handbook, 1961;
"QST", 3 March 1959;
"Amateur Radio", Dec. 1959.

S.W.R. METERS

KYORITSU Model K-109 Standing Wave
Ratio Bridge, 1:1 to 1:10 a.w.r. Imped-
ance 50 and 75 ohms. Frequency range 1.5
to 50 Mc. Includes 0-100 d.c. microam-
meter. Inc. sales tax.

GRID DIP OSCILLATORS

Just out! The transistorized EDDYSTONE
"Edomex" type G.D.O. 300 kc. to 115 Mc.
with set of seven plug-in coils. Zener
stabilisation maintains constant performance
with falling voltage. Can be used as d.c.o.
for resonance checks on tuning circuits, for
actual measurement of inductance and capac-
ity. An in-built modulator stage provides
use as signal generator receiver align-
ment or as a signal source for audio tests.
Can be used as absorption wavemeter,
heterodyne wavemeter and modulation moni-
tor. Tuning is simplified by geared reduc-
tion drive while the clearly calibrated
scale permits rapid reading. Meter sensi-
tivity is adjustable. Unit includes jack for
morse key for use as morse code practice
oscillator. No external power source re-
quired. Price \$24.75 (inc. S. Tax).

A & R TOROID BALUNS

General Specifications: Power rating—Types
A, B, C, 500 watts or 400 watt p.e.p., pro-
vided the a.w.r. is less than 2:1. Con-
struction—Toroidal ferrite cores, fully en-
capsulated with epoxy resin and silica
under vacuum. Suitable for use in cold to
sub-tropical areas. All except 355C and
356C are provided with antenna insulator
support brackets. Balun type 355C, approx.
2 in. diam. x 1 in. plus socket and lugs.
Weight approx. 3 1/4 to 4 oz.

Type 350A—Impedance ratio 1:1. 75 ohms
unbalanced to 75 ohms balanced, 3 to 30
Mc. For use at centre of dipole antenna
with co-axial cable feed line or at base
end with 75 ohm twin line. Co-axial
connector is helical type 349A, C and
lug terminals. Price \$3.77 (inc. S.T.)

Type 351A—Impedance ratio 1:4. 75 ohms
unbalanced to 300 ohms balanced, 3 to 30
Mc. For use at centre of a folded dipole
antenna with co-axial feed line or at base
end with 300 ohm twin line connector
and terminals as 350A. Price \$3.77 (inc.
S.T.)

Type 352A/BC—Details as 350A except
frequency range 500 Kc. to 5 Mc., or to
30 Mc., for receiving purposes only with
increased attenuation. Price \$3.77 (inc.
S.T.)

Type 353B—This is a type 350 with a co-
axial socket SO-239 (Amphenol screw
type). Price \$4.50 (inc. S.T.)

Type 354B—Type 351 with SO-239 co-axial
socket. Price \$4.50 (inc. S.T.)

Type 355C—Impedance ratio 1:1. 50 ohms
unbalanced to 25 ohms unbalanced, 3 to
30 Mc. For use at the base of a mobile
whip antenna, coupled to fixed or adjust-
able transmitter output impedance. Lug
terminals. Price \$3.49 (inc. S.T.)

Type 356C—Impedance ratio 1:1. 75 ohms
unbalanced to 25 ohms unbalanced, 3 to
30 Mc. Lug terminals. Use as 355C.
Price \$2.49 (inc. S.T.)

PENETROX "A"

Famous American aluminum and copper
corrosion inhibitor. Avoid bad electrical
connections and corroded joints on beam
antennae, T.V. antennae, etc. Use—
PENETROX "A"
Price: 14 per tube
(Post paid)

"JABEL" TR14 REAMERS

Ideal for clean finish on small panel holes
and cleaning out for neat fit.
Price: \$1.95 each.

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430 ELIZABETH STREET, MELBOURNE, C.I. VIC.
Phone 34-6539

SOME THOUGHTS ON SIX METRE T.V.I.

ROY HARTKOPF,* VK3ZOM

THE fall off in 6 metre activity since Channel 0 started has been so great that—for a large part of the time—the six metre band is virtually unused. This is bad from every standpoint, especially if one believes in the "use them or lose them" philosophy.

Shortage of time has prevented the writer building any two metre gear and so he has been on six metres quite regularly and the results of his experience may be of some help to others.

The very first thing is to go over to vertical polarisation. If you like to make a rotatable vertical ten element beam there is nothing against it, but the writer has found that a simple ground plane is surprisingly effective. It eliminates practically all flutter when talking to mobiles; over three DX seasons it has proved—as far as can be seen—as good as any other type of antenna; and finally it has the great advantage that one does not miss contacts, both calling and listening, because the beam is pointing in the wrong direction.

Fig. 1 shows the general construction of a ground plane which can be made in a few hours at the cost of a few shillings (cents to you). Try it. One does not have to have the radials sloping down and out at this peculiar angle, but the general idea is that being half way between a vertical dipole (70 ohms) and a ground plane (35 ohms) it should be a reasonably good match for a piece of 50 ohm co-axial cable. An additional bonus comes from the fact that when you go over to a ground plane you will find a marked reduction in any interference from Channel 0 in the six metre converter.

The second and obvious thing is to keep on the 53.032 Mc. a.m. net frequency or slightly higher, especially during the evenings. The extra megacycle separation makes a great difference to t.v.i. and has no appreciable effect on one's ability to make contacts. If not working on the net, choose a frequency within 100 kc. of the 53.032 net frequency. The reason for this is that an efficient high Q trap, when one has to fit it, has a very narrow bandwidth over which it is effective.

Thirdly, you will find there is a threshold power level of your transmitter above which t.v.i. becomes practically inevitable. This is normally somewhere in the region of 5-8 watts, a power when effectively used with a decent aerial is more than enough for normal local contacts. Look how effective the Pye Mark 1 Reporters are. Last summer the writer heard VK4ZLZ mobile in the middle of Brisbane at RS 5 and 8. If you experiment with your own t.v. receiver, steadily reducing the transmitter power, you will find this "threshold" effect. A reduction of as little as ten per cent, will make the difference between no picture and practically negligible interference. As mentioned above, this maximum power

is something to be found by experiment. Mainly it seems to be governed by the aerial set up.

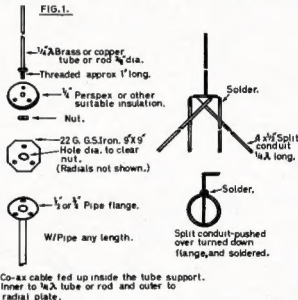
The above three suggestions are based on the assumption that the mechanical and electrical design of your transmitter is first class, which unfortunately is seldom the case. But here are a few things which can be checked and rectified with very little expense.

Make sure that as little radiation as possible is getting back into the mains either on the transmitting frequency or on any other. Don't take this for granted. If you do a thorough check round power points, etc., with a sensitive absorption meter with the transmitter working into a dummy load you will probably get a horrible shock. The

neater rig and things like cross-band working and tape recorders can be used without r.f. getting into every audio amplifier and creating a chorus of howls and squeals.

Much of the trouble with poor or unstable modulation at v.h.f. can be traced to r.f. getting into the audio circuits and overloading them. So for your own sake as well as for the prevention of t.v.i. make sure that the only r.f. radiation is that which comes from the aerial.

Even if you have done all these things you will, unless you are very lucky, still have a little t.v.i. to contend with. Begin by practising on the home set. Firstly make sure that the fine tuner covers the correct range. At



writer has an old home-brew sig. gen., completely enclosed in an aluminium box with only the mains lead coming out. It is low power, using an acorn tube (955) as oscillator. Yet when this is switched on in the house, with output control at zero and not even the output lead in the socket, the little brute gives enough signal to overload the mobile receiver in the car in a tin-roofed garage down at the bottom of the yard!! The car receiver isn't even connected to the mains! Imagine what a crystal oscillator on 48 Mc. could do! One of the simplest and most efficient ways of eliminating mains trouble is to use feedthrough capacitors in all h.t. leads including heaters which go to any part of the transmitter, together with a small r.f. choke. In using multipliers avoid like the plague any frequencies which fall in the Channel 0 band.

In any case it does no harm to screen all transmitting equipment. One has a

one end you should be able to get the picture breaking up with sound bars appearing and at the other end you should lose the sound. In between these positions there should be one where the best picture and sound coincide with the least t.v.i. If the interference is still noticeable then is the time to fit a trap.

Fig. 2 shows details of a simple trap which the writer has found to be extremely effective. It is basically a simple series resonant circuit and in effect makes a short circuit across the t.v. set input at the transmitter frequency. The reason for the two capacitors can easily be connected to the terminals of the set along with the 500 ohm ribbon. No soldering is needed. Then, since the coil centre axis is parallel to the back of the set it is very easy to insert a tuning wand and watch the result at the same time. (During the adjustment the transmitter must of course be running with a

* 34 Toolangi Rd., Alington, N.S.W. Vic.



COMMONWEALTH OF AUSTRALIA

DEPARTMENT OF THE NAVY

AIRCRAFT MAINTENANCE AND REPAIR BRANCH

NAVAL DEFENCE ACT VACANCIES

SENIOR TECHNICAL OFFICER, GRADE 1 (2 positions)

SALARY: \$4236-4540 (actual).

DUTIES: Position No. 23.

Responsible to an engineer to act as section leader on maintenance engineering aspects of Naval aircraft communication and navigation radio equipment and associated test equipment. Some development work is involved. Initiate and prepare technical orders and correspondence, progress investigations relating to defects, modifications, spares, etc.

QUALIFICATIONS:

Some theoretical training in Radio engineering. Considerable experience on the maintenance of aircraft communication and navigation radio systems and associated test equipment, and some knowledge of British and American procedures desirable. Ability to direct staff, prepare correspondence and reports.

DUTIES: Position No. 18.

Responsible to an engineer to act as section leader on maintenance engineering aspects of Naval Aircraft electrical and ignition systems including associated test equipment. Some developmental work is involved. Initiate and propose technical orders and correspondence, progress investigations relating to defects, modifications, spares, etc.

QUALIFICATIONS:

Some theoretical training in Electrical engineering. Considerable experience on the maintenance of aircraft electrical and ignition equipment together with associated testing facilities, and some knowledge of British and American procedures desirable. Ability to direct staff, prepare correspondence and reports.

LOCATION: of the above positions—

Initially in Melbourne but to transfer to Sydney in January, 1967. Transfer will be made to Sydney at departmental expense. An allowance will be payable to the successful applicant whilst located in Melbourne except for Melbourne applicants.

TECHNICAL OFFICER, GRADE 2

SALARY: \$3768-4072 (actual).

DUTIES: Position No. 50.

Responsible to a Senior Technical Officer for the provision of technical advice to all Contractors engaged in the servicing, repair and overhaul of aircraft radio and electronic equipment.

QUALIFICATIONS:

Sound basic training in radio and/or electronics. Wide experience in the maintenance of airborne radio systems, preferably in military aircraft. Ability to prepare reports and correspondence.

LOCATION: Sydney.

APPLICATIONS

To reach the Secretary, Department of the Navy, Canberra, A.C.T., by 5th August, 1966, preferably on forms obtainable from the following centres:

Canberra	Telephone 65-3629
Sydney	Telephone 35-0444, Ext. 495
Brisbane	Telephone 31-1611
Melbourne	Telephone 69-0440, Ext. 6712
Perth	Telephone 39-1521
Adelaide	Telephone 49-6123-5

tone or a tape recorder or a second operator providing normal modulation.)

For those who haven't a tuning wand it can be made by cementing a small dust core slug to one end of a plastic knitting needle and a piece of brass or copper about the same size to the other end. Wrap a little tape over them to prevent the metal touching the coil and make sure the wand is small enough to go inside the coil. The first time the writer tried this on a neighbour's t.v. set the results were amazing. As the tuning wand was poked slowly and carefully into the coil the interference disappeared so suddenly and completely that the writer thought for a moment that the transmitter had packed up!

You can't of course leave the tuning permanently in the coil but here again the design of the trap makes adjustment very easy. If the dust core end clears up the interference then squeeze the coil together a little, and if the insertion of the metal slug clears it then pull the ends of the coil apart.

For preliminary adjustment of the trap either use a g.d.o. with the leads which one normally connected to the t.v. set shorted or connect a torch bulb between them and hold it near the tank coil of your transmitter and squeeze or open the coil until it resonates. Use a frequency readout about the middle of the band (i.e. 55 Mc.).

Another thing which can sometimes be helpful in very strong signal areas is to put a couple of small carbon resistors in series with the antenna leads. This will attenuate both the signal and the interference and reduce the possibility of front end overloading in the receiver.

PUBLIC RELATIONS

So much for the technical problems. This still remains what we could call the social, public relations and personal problems. In the writer's opinion these are far more important even than the technical ones and unfortunately receive the least attention.

Imagine you are on the air one evening and a neighbour whom you hardly know bangs on the front door and tells you he cannot hear his programme because of interference. Like most people he is probably a well meaning bloke who hasn't a clue about anything technical. He feels annoyed and at the same time embarrassed about coming round and complaining. To get enough moral courage to come and knock on the door he has probably had to work himself into a state of real or imaginary temper. How to deal with such a person?

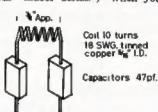
Don't start off by denying anything and, even worse, don't start apologising. Just be friendly and interested. Ask him how long it has been going on. If he has been a week or two working up enough courage to come and complain he will want to get it off his chest. So listen with sympathetic interest while he tells you how he missed the really good sexy bit of the review, and never found out who killed the blackmailer and missed the best part of the massacre in the Hollywood epic.

The longer he goes on talking the better and his relief at finding a sympathetic listener will make him feel so

much better that he will be prepared to co-operate to the full.

There was one classic instance of the effectiveness of this approach when one complainee, after sorrowing for ten minutes and basking in an atmosphere of sympathetic interest, finished up by saying, "Of course it isn't really so bad and most of the programmes are so rotten it does not matter much if we do miss a bit."

When he has completely finished you can start asking him questions. Has he got an outside aerial and has it been put up by a qualified serviceman. If he hasn't tell him that the radio inspectors will have nothing to do with any installation which is not up to standard and in the same breath say that you have—being interested in radio—designed some special traps which will probably clean up the interference in spite of his sub-standard installation. (It is of course more tactful to use the words "indoor aerial.") When you go



down to fit the trap try moving the lead and the aerial. You will sometimes find that a few inches will make all the difference. Show him how critical this kind of set-up is, explain how dicey the television wavelengths are, and without being offensive, always make it clear that it is his installation not yours which is faulty.

If he has an outside aerial then ask him if the set has had Channel 0 fitted by a qualified serviceman. If the answer is no, then repeat the routine above with suitable variations.

If from his answers it seems that everything is in first-class order then tell him about the trap and arrange to go down and fit one. Before doing so, however, see that his aerial looks O.K. and is pointing to the television station and not in the wrong direction. Also check the socket and see that one lead of the ribbon is not hanging loose, a very frequent occurrence. Then fit the trap and unless you are very unlucky the troubles will be over.

Occasionally, however, you may come across a real no-hoper. There are two kinds of no-hopers, human and electronic, and the method of dealing with them is the same in both cases. Get in touch with the radio inspector.

From the writer's personal experience it would be hard to find anyone more helpful, sympathetic and co-operative than the average radio inspector. In addition, he has had more experience in all kinds of interference than anyone else and has all kinds of unexpected clues and answers. One no-hoper (electronic, not human) problem, where the fitting of a trap eliminated Channel 0 interference but broke up Channel 2 (apparently because of tuner instability), was very neatly solved by the R.I. bringing a television

set which he carried in the car, into the house and showing the people that it would receive perfect, interference-free pictures on all channels, using the same aerial and power point.

Another case, where interference complaints came from a person several streets away, the trap removed the interference and a fair amount of Channel 0 as well. It was obvious that the front end r.f. stage was tuned to the Amateur band or higher.

Again the person was politely but firmly told by the R.I. that the receiver was responsible and should be attended to.

Human beings tend to accept and hold illusions just because they are too lazy to think for themselves. One of the most widespread of these illusions is that the majority are always right. Actually if we look at history we will find that progress has been achieved by the minority of cranks, saints, prophets and martyrs, with the majority dragging along reluctantly like Paddy's goat; and only moving of their own accord when things get so desperate (through their own laziness) that they have to do something.

One could enlarge on this theme indefinitely but the point is that, because a thousand people watch witless cowboy films and gangster thrillers and only one person runs an Amateur transmitter, that fact does not make a thousand right and the lone Amateur wrong. In the writer's opinion there is far too much apologetic talk among Amateurs about service to the community, as though they had to justify their existence. Have anyone thought of asking the square-headed tele-addicts to justify their existence. They would be hard put to do it!

The average Amateur might not be a budding Marconi, but the very fact of using, operating, and (we hope) constructing radio gear means he is learning, without expense to the community, skills without which a modern society could not exist and without which the majority would not have any thrillers to look at.

A little pep talk along these lines, tactfully put over while one is curing t.v.i., does no harm at all, and one sign that it has been effective is when the people offer to pay for the time and cost of fitting the trap. It is very bad policy to accept anything, but the offer does at least show that the assistance has not just been taken for granted.

One final word of warning. Do not ever let your enthusiasm get the better of you to the extent of offering to do anything to the t.v. set. Do not ever even take the back off. If you can and do fix anything your efforts will be taken for granted and if anything goes wrong with the set for the next five years you will be blamed. On the other hand, if the people show any interest in Amateur activities by all means invite them to see your shack and say a few words over the air.

Curing t.v.i. is not necessarily a chore. It is another aspect of Amateur Radio and one in which it is still possible to make new and interesting discoveries. In fact, this and the u.h.f. bands offer perhaps the best opportunities for the pioneering Amateur of today. So good luck and see you on six.

SIDEBAND TOPICS

COST STRUCTURE OF IMPORTED S.S.B. TRANSCEIVERS

Recently, most American Amateur equipment has been increased in price. The SWAN SW350 and GALAXY V. Transceivers, without accessories, now cost U.S.\$420 in the U.S.A. Adding freight, insurance and handling overheads, this equals an even \$400 in Australian money. Disregarding local import duties, this comes to \$450 after adding the inevitable 12½ per cent. sales tax.

However, we have to allow for the 45% import duties on the importers' net cost. In the past I have tried hard to get admission of strictly Amateur gear under By-law (reduced or no import duties) provisions, but without luck. Here are some extracts from letters received from the Commonwealth Department of Customs and Excise:

"The Customs Tariff does not make provision for admission under By-law to single sideband Transceivers when for Amateur use."

"In respect of such goods for commercial use, Transceivers are available from . . . (names of Australian manufacturers) . . . and for the purpose of By-law administration, suitably equivalent to imported units."

In future, therefore, the cost structure of SWAN and GALAXY Transceivers, in round figures, will be:

U.S. dollar retail price	.....	\$420
30% discount, only on large orders	.....	126
		\$294
45% import duties (add packing cost)	.....	133
12½% S.T. on landed cost, plus 20%	.....	64
Approximate freight, insurance, etc.	.....	19
		\$510
Total landed cost in U.S. dollars	.....
Approximate Australian money equivalent	.....	\$460

If sold for much under \$580, the Australian importers will have less than 20% gross profit mark-up to cover all their expenses, risk, warranty liabilities, etc. Few can be expected to do that.

It should be clear what real bargains Australian Amateurs have been enjoying. I shall continue to sell my present stock at the old prices, see April and May 1966 advertisements in "Amateur Radio," but when new supplies arrive the prices will have to go up. I maintain stocks of:

- ★ SWAN SW350 latest model Transceivers.
- ★ GALAXY V. Transceivers, with the best receiver of the lot.
- ★ HY-GAIN multiband verticals and 3-band Yagi Beams.
- ★ Co-axial Baluns.
- ★ C.D.B. and ALLIANCE Antenna Rotators.
- ★ WEBSTER Bandspanner all-band Mobile Whips.
- ★ Heavy duty A.C. Power Supply Speaker Units.
- ★ D.C.-D.C. Transistorised Mobile Power Supplies.
- ★ AUTRONIC Transistorised Automatic Keyers.
- ★ Crystal Filters, Verniers, Trimmers, etc., for the home-builder.

—Arie Bles.

SIDEBAND ELECTRONICS ENGINEERING

P.O. BOX 23, SPRINGWOOD, N.S.W.

Telephone: Springwood 51-1394

SIDE BAND

Sub-Editor: PHIL WILLIAMS, VK6RN

CRYSTAL FILTERS FOR S.S.B.

It is apparent that the crystal filter will become the "work-horse" of commercial single-sideband during the early 1970's when many point-to-point and mobile h.f. services will be changing over to this mode of transmission. This is not to discount the widely used mechanical filters, mostly manufactured for the popular i.f. frequency of 455 kcs., and also on certain lower frequencies. Where equipment is to be kept simple, cheap, and free from the problem introduced by multiple mixing (such as the elimination of unwanted frequencies) the h.f. crystal filter in the 4 to 10 Mcs. frequency range, comes into its own.

Many Amateurs with patience, ingenuity and a certain amount of good fortune have been able to produce very good crystal filters in the 400 to 500 kcs. range using surplus type FT243 crystals, and in the h.f. range using FT243 type crystals. Although this is not a "how-to-make-one" article, you are referred to back copies of "A.R." and the article in "QST" of October, 1960, by D. J. Hesley W9BEC. Just remember that any design using a high impedance filter terminator, e.g. a low C tuned circuit, should be suspect. David Robertson VK6RN/W2 went to the trouble to optimise the FT243, 2-half-lattice filter design by digital-computer studies, and his results were published in "QST" of July, 1964, p. 58. The curves he gives are worth studying as they could save a number of your "experimental" crystals. The use of plated surplus crystals should be avoided as the pole-zero frequency spacing is usually excessive, being about 5 kcs. or more. An exception to this statement is the special list of filter crystals marketed by the International Crystal Co. in U.S.A.—the crystals are specially made.

COMMERCIALY MADE FILTERS

The following is a general discussion of a few of the "facts of life" about filters.

H.F. crystal filters are relatively new to come on the market in countries other than U.S.A., and even there, up until two or three years ago, were produced by only a few specialist firms. Now we hear of British, German, Japanese, Canadian, Russian and Australian firms about to produce reasonably priced s.s.b. filters in the 2 to 3 kcs bandwidth class. These filters are usually of two grades, the 4-crystal filter having spurious "pop-ups" about 4 db below maximum in-band response, and 6 (or 8) crystal filters in which the "pop-ups" are better than 60 db down, and the shape factor slightly better (steeper sides). My experience has been that the former (cheaper) type is quite adequate for

transmitting duty with some treatment of the audio amplifier to reduce response below 300 cycles and above 3 kcs. They are also quite good enough for v.h.f. s.s.b. on 6 or 2 metres, where the band is megacycles wide, but for receiving or transceiving in your home station, the better filter will be justified for removal of strong signals on adjacent channels when you are struggling with "strength 2" DX stations.

Where separate filters are used for selecting upper or lower sideband, these may be asymmetrical filters having a steeper slope adjacent to the carrier crystal and the pop-ups, too, are lower on this side. The majority of filters made for the Amateur are symmetrical, and are supplied with upper and lower sideband crystals.

Since the manufacturer has to do quite an amount of development on each filter and then spend money tooling up and providing a test line, you are well advised to buy his standard filter. If you ask for another type on another frequency just to suit some surplus mixing crystals you have, you will be surprised at the price quoted, to say the least. You will get the same answer if you demand an "obsolete" type, too.

It is fortunate that the narrow band filters having a bandwidth of about 13 times the "pole-zero" spacing are the easiest and cheapest to produce.

Expressing the bandwidth as a percentage of the centre frequency we can roughly divide filters into the following classes:—

1. 0.005 to 0.3% bandwidth—relatively cheap and easy to make—includes Amateur 5 and 9 Mcs. types.
2. 2 to 10% bandwidth—so-called "wide-band" filters. These use inductances in special designs to broaden the pass-band, and designs are more complex.
3. 0.3 to 2% bandwidth—i.e. quasi-wideband filters. These are neither type 1 nor 2 and require quite a lot of design and development, resulting in a high-cost filter.
4. Non-standard configurations, such as steep cut-off on one side, special slope characteristics, delay and phase compensation and other special features. Cost will be high depending on stringency of specification, but equipment manufacturers can frequently obtain reasonable quotations for quantity production.

There are no standards either of the commercial or military variety for filters as yet, so you just have to trust the maker and go by his past record of production of acceptable filters—his published data and instructions as to how to use the filter, for optimum results.

One cannot expect fast delivery of special filters because of the relatively

slow ageing of the filter crystals. Several months is quite usual from a factory almost next door.

Delivery of standard filters already on the shelf, is, of course, ex-stock.

In general the cost of filters of the standard variety is dependent on the number of sections. The 3 section (6-crystal) filter is about 50% more costly than the 2 section (4-crystal).

The variables which must be specified when a manufacturer orders a filter, are:—

- Termination.
- Operating level.
- Input power.
- Attenuation.
- Centre frequency.
- Spurious responses.
- Type of response.
- Environment,
- and tolerances on the above.

For Amateur application temperature tolerance is not of any consequence, where a 50-cycle frequency change is typical of 9 Mcs. over a 10 to 50°C. temperature range. A specification of—say 50 to +100°C., can give a frequency change ten times the above figure, and this is another story.

Termination of a filter is usually related to its natural impedance and is usually specified by the maker. The circuit designer must meet this requirement in his own way (many "equivalent" circuits are permissible), if the termination is not already sealed into the filter case. Low frequency filter crystals are better for "temperature range" and high frequency crystals for "vibration." While these do not worry Amateurs, some compromise will be necessary for a commercial or military design. Overdrive can frequently damage filters and degrade performance. An input of 10 milliwatts is a typical upper limit. Isolation from d.c. is essential, and goes without saying more.

Filter tolerances should not be tighter than required as this may reduce the yield of crystals from a production run making the cost of the system quite prohibitive. Many filters are specified on a c.w. response curve basis, but the user should remember that few of them work under this condition and therefore transient response is all important. For the Amateur this means that the speech must "sound" right. I consider this to be a defect in the performance of the usual mechanical filter—but these still have other desirable attributes for purely "communications" quality.

The low loss of the crystal filter makes it desirable for Amateur use. When comparing loss figures, however, the basis on which these were taken should be considered, e.g. was the db. loss a power loss, or a voltage transmission loss when correctly terminated? I trust this long list of considerations does not deter any Amateur from using up that stack of FT243 crystals and the jar of ammonium bi-fluoride (slowly eating its way through the bottle) on top of the cupboard in the shack. With care you will produce an acceptable filter.

73 for now, Phil 5NN.
N.B.: That old sidebander south of Perth, Bob VK6RG had his 80th birthday on the 6th day of the 6th month of 1966. Congrats. Bob!

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- 13th/14th August: REMEMBRANCE
DAY CONTEST.
- 10th/11th September: W.A.E. Contest
(Phone).
- 1st/2nd October: VK/ZL/Oceania DX
Contest (Phone).
- 8th/9th October: VK/ZL/Oceania DX
Contest (c.w.).
- 15th/16th October: R.S.G.B. 21/28 Mcs.
Telephony Contest.
- 29th/30th October: R.S.G.B. 7 Mcs. DX
Contest (Phone).
- Dec. 10th/Jan. 15th: Ross Hull Contest
(v.h.f.).
- 11th/12th February: John Moyle Memo-
rial N.F.D. Contest.

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cles, photographs of stations and
gear, together with articles suit-
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VK4AT MIGHT GO ON THE AIR

GETTING on the air! There's really nothing to it. I am already pawing the air. Everyone around here is exhausted, but not me.

I admit that my five passes in the A.O.C.P. exam (not all at once) really shook me. No old war horse was faster off the mark. A power supply was acquired by ballot—almost unseen. It was advertised as a Minor Supply, but it would surely be big enough for a v.f.o.

My complacency was shattered somewhat when two big men successfully delivered it. Evidently they sold these things by the cwt. Its brand disturbed me not at all—R.A.A.F. Minor Unit No., etc. The sight of two 807s clearly indicated that the transmitter was still stuck on it.

There was no evident provision for the aerial lead on the relay and voltage regulating two 807s with a single 105/30 V.R. tube was a stunt that had escaped my notice in the past. However, the 8Y3 circuit was okay and a couple of 866s looked good. Now, on occasion I have myself depicted electrical currents flowing in paths not usually followed by them, but I needed no circuit now to show me similar phenomena.

Additional to the above were two manually operated resistor gadgets that allegedly raised the voltage as further resistors were introduced into the circuit. Poor Mr. Ohm! At such a sight I was pleased to note that my state of learning had reached such a level that I could effortlessly assume that air of horrified nonchalance sacred to the ranks of our older and very superior Hams.

On reflection I reverted to my former status and took the whole works into our Glympse Lecturer, Eric VK4XR. His verdict: I was to fit all gadgets and surplus bits out, change the bias wiring into a plus supply, replace the

former 20 watt 1500 ohm bleeder with a larger one (the present one measures 7 inches by 1 inch diam.) and change it from cap. to choke input. I was to leave the 500v. per side circuit as was, and was not to put my finger—*There, there and there* when the power was on!

In addition, if on adding the power the valves lighted up brilliantly and then went out, I was to re-check the wiring. If the switchboard fuse went it indicated a supply fused wired out. If no fuse went and the Supply started to smoke it only meant that I had by-passed all the fuses. On my departure with the precious Power Supply, he could not have been more warm in his way even if he had never expected to see me again.

I just had all the surplus bits ripped out when Barry 4LN arrived. He said that the local Radio Club was so short of active members that they couldn't afford the numbers to lessen, but I could hand him the side cutters and the pliers and he was going to take the Power Supply home with him when he left. I reminded him that I was already teaching a chap from a neighboring town who worked in the S.E.A. Barry 4LN was unimpressed but observed that as they were already short handed in the S.E.A. it would be a good idea to bring him along too, on my next visit to the Power Supply. This I did.

Now, 4LN tosses components around as though he were playing with his grandchildren, but on the first move from one of us he would yell, "Don't touch it—*There, there and there!*" He enquired if we both understood Relays. I could confidently answer in the affirmative. They were those things that made a chattering noise as you hooked the leads on the right terminals, but the chattering noise was not made

by them if you made a mistake and selected the wrong terminals. So now I am to have relays on my Power Supply . . .

As soon as I finish the last half of this little book that I'm currently reading (a translation of Albert Einstein's Relativity—The General and Special Theory 19th Edition 1954) I intend to hook on the said Power Supply to my \$10 Command Transmitter, take a tranquiliser and switch on! I understand that spits, sparks and sniffs don't worry you then.

—A. J. C. Thompson, Skyrings Creek, Pomona, Qld.

★

Father Xmas, Fairy Godmothers and all

Has anyone ever telephoned you to ask whether you would like a transmitter and receiver covering the 3.5, 7, 14 and 21 Mc. bands which could be used on c.w., a.m., s.s.b. and r.t.t.y.?

Probably not, and it had certainly never happened to the Hon. Secretary of the Royal Signals Amateur Radio Society before. The caller was the society's president breaking the news that the Marconi Company were to present the society with a complete D11/R234 Installation.

Whilst many members of the Signal Corps will be familiar with the D11 a brief description for the benefit of readers will not be amiss.

The transmitter known by makers' designation as the type H57, covers from 2 to 32 Mcs. and has a P.E.P. of a.s.b. of 350 watts.

The frequency range is covered in a series of 1 Kc. steps, the frequency being set on a series of decade switches and a phase locked oscillator locked to the synthesiser to give the required frequency. Once set a maximum drift of one-third of a cycle is claimed. The transmitter has a CRO built into it for radiation monitoring. Audio test oscillators are built in to give the standard two-tone test for linearity.

Apart from a.s.b. the transmitter can be used for c.w., a.m. and i.s.k., the latter with three shift frequencies.

The accompanying receiver, the R234 or makers' designation H28, covers 2-28 Mcs. continuously. It was built in 100 and 10 Mcs. calibration oscillators. When the received signal has a carrier, automatic frequency control compensates for any drift.

The operators at G3C10, still slightly staggered by this magnificent gift, are busy familiarising themselves with the equipment which will certainly be fully used in the months to come.

Who said there was no Father Xmas?

—VK2ZVC. With acknowledgment to "The Wire" (The Royal Signals Magazine).

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Book Review

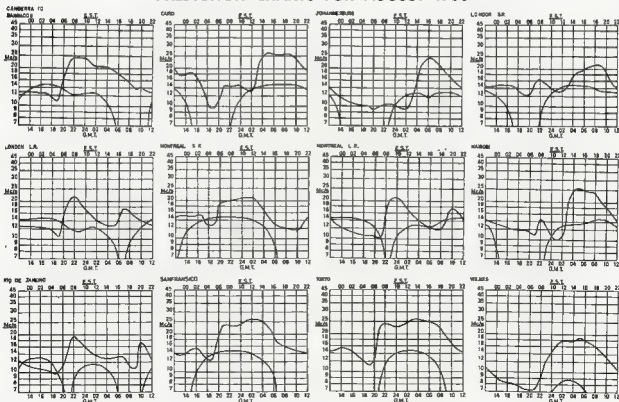
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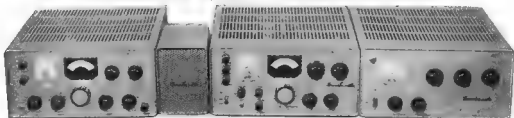
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V.H.F. CONVENTION

The third Annual VK3 V.H.F. Group Convention will be held over the weekend 8th and 9th October, 1966. The Saturday events will be held in an eastern suburb of Melbourne and the Sunday events in the Mornington Area.

For further particulars write to V.H.F. Convention Secretariat, c/o Peter Welfenden, VKEPRA, P.O. Box 38, East Melbourne, VICTORIA.

site and the interferences which could be expected from these services.

P.5. Does any other division have their Sunday Broadcast simultaneously on 70 cm., 6, 2, 80, 40 and 160 metres? We do.

QUEENSLAND

Contrary to what was anticipated last month, June has produced high activity on the v.h.f. bands in VK4.

8 Meters. Sunday morning is the time to hear 53 Mcs. signals on the band. In the past few weeks as many as 18 stations have been operating. Most notable signals have been those of VK4ZLG, VK4ZTW and VE4ZCA. Tom VK4ZAL is finally about to get his taxi-phone going again. It's certainly been some time since Tom was on 8 meters.

The 4 metre transmitter hunts have been proving very successful with a turn-out of about 10 cars. Loaded beams or D.F. loops have proved useful in finding the hidden transmitter. However, some cars have been led astray. David VK4ZDF is known as the side lobe chaser.

Some minor openings have occurred. In the third week of June, VK6ZAT heard a few VK3's but was unable to work any of them.

1 metre - 144 Mcs is producing some good results. The VK6ZAT group has been working ECP and 4ZWB have been active working Brisbane stations regularly. Sunday or Wednesday evenings is the time to hear the main 2 metre net. This town recently were VK7, ZZRQ, ZZOG, ZZKH, and ZYB. I remember BRT under his old call sign of VK6ZKP. In passing, I have noted a few requests that Bert VK6CP should either clean his present crystal or buy a new one. His present frequency is 144.3 plus, minus .04 Kc.

General News. The V.H.F. Group formed in Brisbane many years ago has until now been officially unknown to the W.I.A. (Qld.) Division. It seems likely that the group will soon be officially recognised by the division. The V.H.F. Group meets on the third Friday of every month in the rooms of the Brisbane Institute of Social Services, Berwick Street, Valley, at 8 p.m.

Transmitter hunts starting from River Terrace, Kangaroo Point, at 8 p.m., are held on the Friday after the W.I.A. general meetings.

At the April Federal Convention of the N.E.A., a motion was tabled seeking full participation of "Z" Licences in the R.D. Contest. The VK3 delegate was given an assurance that the participation of "Z" Licences would count in the determination of their status more in the contest. However, it means that this year the N.E.A. section is not going to be the ground of an important basis. However, many VK4 stations will be operating and will be looking for a possible opening to the southern states.

73. Peter VK4ZPL.

The news of the moment for VES is that the 6 and 2 metre beacon transmitters are close to being ready for the general public, containing a suitable weatherproof, dustproof, tamper-proof and Amnisteur-proof cabinet in which to house the beacons has at last been solved. Due to the resourcefulness of Eric Smith and his staff, the ideal container has been obtained, and is at this moment undergoing final preparation before installation on the Channel 7 TV Transmitter site. To coincide with the re-introduction of this Australian service, the 2 metre beacon will be the first to be installed, and is also undergoing a major

ref. For 6 metres the turnstile is being re-
built, and for metres a cloveleaf or "big
wheel" (depending on which college you as-
tend) is being used instead of the previous
stacked turnstiles. Bob SZDX is supervising
the project and is receiving tremendous support
from the usual active participants of the
v.h.f. art in VK3. No date has been estimated
for the completion of the re-installation, how-
ever, now that work is well under way, the
big day for re-commencement of transmissions
by VK3VF is quite near.

Six metre activity of late has been on the increase due to the arrival of several new stations. The more recent stations have been Graham 5ZRJ at Balaklava, Tim 8TJ from Clare and Ron 5ZRW from Lyndoch.

Pat SKCM at Victor Harbour has also returned to 2 metres. Pat has rebuilt his shack on a hill that has been referred to as "v.h.f. operators' delight." From reports to hand it would appear that Pat's efforts have been well rewarded, especially into VLF and HF. The Victor Harbour VLF is an interesting position on mode reliability has been well assessed recently by the change to a.s.b. from a.m. by Herb KXN. Noted observations at this QTH have substantially proved the advantages that are available by using a.s.b., in that the readability of Herb's signal has been

Further, in last month's notes when it was quoted that the T.V. Group had a colour television working, we have to report this month George SZEV has completed a 3-tube Vidicon Colour Camera. Although I have not personally viewed the results, I have been told that the colour reproduction produced by the closed circuit system is very remarkable for commercial equipment. Enthusiastic over the results obtained with this prototype unit, the t.v. group are planning to construct another receiver and 3-tube Vidicon camera, so that their Royal Show exhibit this year will be a real eye opener.

WESTERN AUSTRALIA

The main activity here has been the Field Day on the 21st May. Among the portable stations participating were VK8's LK, ZDB, ZCN, ZAO, MM, QJ and ZPJ. Logs were received from five stations, the winners being: A.M.: Charles VK1LK with 2003 pts. F.M.: VK1ZDD with 1848 pts. It was decided to hold another Field Day in the near future. Extracted from the VK8 Newsletter.

U.S. DEPARTMENT OF AGRICULTURE

At the July meeting correspondence was received from VK's IADA, EZFE, SQL, IABC, IAKZ, 4DU 5YB, ENN, Sec VK4 Division and SQL/W5. A short technical article was received from VK3AKC.

Some Divisional note did not arrive on or before the fifth of the month. As this was the first time notes were required by the fifth we waited for three extra days, but some notes have still not arrived.

The setting of the Call Book has been commenced. As this is the first complete revision the Call Book was first published, an early start was necessary. The committee suggests that all Amateurs check their address in the current issue and if not correct advise the F.M.G.'s Dept. and the Publications Committee IN WRITING immediately. No alterations can be made otherwise.

Other matters considered were advertising rates for "A.R." and the Call Book, the budget for 1966-67, and the delays in delivery of "A.R." over the last few months. This last matter has already been discussed with the mailing service and an assurance received that this matter will be rectified, but we will have to co-operate by getting the magazine to the mailing service by the 15th of the month.

Date of Contest: 13th and 14th
August, 1966

Crossmode operation is permitted.

Log times **MUST** be in G.M.T.
Complete Rules in June Issue

Complete Rules in June Issue.

Sub-Editor CYRIL MAUDE, VK2ZCK
1 Clarendon St., Avondale Heights, W.1, Vic.

Well its new time again and not much has been received from the other states. I would like to remind correspondents that as from this month news must reach me no later than the 21th of the month. Where possible it would be appreciated if the news is written preferably typed on the standard size sheet as illustrated in "A.E." some months ago. If you must write the notes in longhand please PRINT ALL NAMES AND PLACE NAMES.

News items have been received from VK4, VK5, and the Hunter River Branch of VK3. Cyril, VK3ZCK.

St. Mes. This band is quiet except for our [local] net, each Saturday and Sunday mornings

at 10 a.m., when new chaps try out their new converters, or transmitters and local rag-chews. New chaps who are on the way to join the "Weird Mob" on 8 metres are Frank VK3ZPX, who has a converter going and Jordan VK3ZSG, who after some years has at last got a converter going, if he takes as long to build his transmitter as it took him to build his converter we cannot expect to hear him on 8 metres before 1978. Bill VK3ZWM has built a combined rig for 6 and 2 metres using a QVQ4/T with a common modulator power supply.

144 Mes. This band is also quiet but one can usually have a QSO with someone, some are building gear for the summer months, or sitting beside the fire. Most active are VK2KRW, ZWM, XZFX, Z3O, ZMO, ZUB, ZFR and others when time or mood permits.

Gordon EZSO, the "Admiral" of you, "Torpedoed and Sunk" himself some weeks ago trying to find the 3 metre band, to relay our "Hunter Branch" Station AWW from 1.8 Mcs. to 1.44 Mcs. for our weekly broadcast, Gordon now does a very good job of the relay.

Barry VKIZUB is recovering after a series of minor accidents during the building of a model aeroplane of the radio-controlled variety. But he has not stopped building, he is working

Kevin VK3ZKW (Kilowatt Kev.) is causing much consternation in shacks around Newcastle when he switches on his final. Complaints have been received of burnt out front ends, 5 meters with bent needles and open circuit voice coils on speakers, the boys are threatening to retaliate soon. 73, VK3ZMO, V.R.F. Liaison Officer, Hunter Branch, W.I.A.

Activity on both 6 and 2 metres has been somewhat even the past month. 6 metres is

spoke over the past month, a metres is still quiet except for Saturday and Sunday during the mornings. A metres has had some shocks, first of all a station north of Melbourne claiming to be JALAT Maritime. Bobbie, 35 miles north of Leucostomus (about 40 miles from the sea), then went to a country to Adelaide, general opening to VKC in opposite districts, East VKC and South VKC and only the other day a day-long opening to Northern Tasmania.

The V.H.F. Group meeting featured a series of talks on v.h.f. hilltop sites in Victoria. About 30 hills were mentioned giving location, accessibility, and areas served. Mention was

VK2 146.00 f.m., 145.854 f.m.
VK2 145.854 f.m., 146.00 f.m. 146.146
f.m. 53.032 a.m., 52.935 f.m., 144.5 a.m.
VK4 53.035 a.m.
VK5 53.1 a.m., 146 f.m. (being formed?)
VK6: 52.656 f.m., 52.935 f.m., 52.766
f.m. 52-847 repeater, 146.00 f.m.
VK7 53.035 a.m., 144.1 a.m.
The approximate total of stations on
53.03 is close to 100 shared between VK2,

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OLD-TIMER ACTIVE AGAIN

VK4DU, J. K. McCarthy, is ex-VK3FK and is re-entering Ham ranks after an absence of 12 years.

VK3FK first went on the air in 1930 with a 45 Hardy Osc. as Tx, and det. and 2 audio (all UX201A's) as Rx operating on 40 and 80. In early '30's he was operator of 3RI on 215 metres on Sunday mornings—this was in the days when Hama were permitted limited operation on the broadcast band.

He joined the permanent R.A.A.F. in 1938 and retired in 1964 Squadron-Leader with DFC A.F.M. and an Efficiency Award. He was navigator and wireless operator of Lancaster G-ASXK the last flying Lancaster, which was flown from Surfers Paradise to Biggles Hill, U.K. in May last year—arriving on 18th May to coincide with the opening of the International Air Fair.

He now owns a power cruiser in which he intends cruising Barrier Reef waters and the renewal of Ham activity will be from his vessel "Pandemonium". Operation will be on 40 metres daylight hours only, and 80 metres at night. VK4DU also used the following calls VK3FK, VK2IM, VK8VM, VK4FX.

LOG BOOK

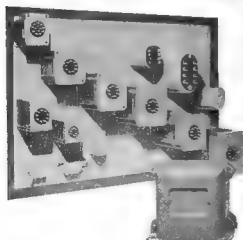
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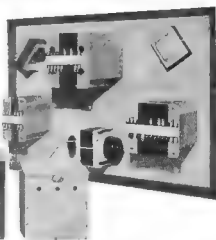
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LM 51

Sub-Editor: D. GRANTLEY, WIA-L3023
Alexander Ave., Roselbrook, N.S.W.



FEDERAL AND DIVISIONAL MONTHLY NEWS REPORTS

(SEND CORRESPONDENCE DIRECT TO DIVISIONAL REPORTER NAMED AT PARA. END)

FEDERAL

NEW SOUTH WALES

The last meeting of Executive was held on the 29th June, and apart from considering the minutes of the last few meetings and quite a large agenda, dealt with items such as the appointment of an I.T.U. Representative and the handling of magazine subscriptions by Executive Work is also on the way on the proposition of a case for novice licensing.

AUSTRALAS PROJECT

From information received it appears that work is proceeding satisfactorily, although a meeting to be held early in July will clarify the situation somewhat. It does appear that there is quite a deal of interest, not only in Australia, but in some future satellite, and Executive feel that whilst the work is undertaken on a second venture, it should be realised that a second attempt will be more expensive than the first equipment will have to be more sophisticated for one thing. At the present stage, the Institute will not be considering any future requests for making any position in this direction until Australia is out of the ground.

LTU REGION 5

Unfortunately Harold Kephurn, Vice-President, was unable to be present at the meeting, but he did submit quite a list of ways and means of obtaining finances for a Regional Conference, which was a very desirable to hold before the next I.T.U. Conference. This matter will be again on the agenda for the next meeting of Executive, and the fuller details in the minutes can be obtained from your Federal Council. It is sufficient to say that some positive thinking has to be done as well as implementing various schemes to raise the necessary money. However, letters have been written to all member Societies in Region 5, asking them to make a contribution, and in return, an exchange of ideas and of problems so that we have, at least, a working basis for future discussions.

RATIFICATION BY DIVISIONS

The voting of all Federal Councils at the last Federal Convention in Brisbane has been ratified by their Divisions with the exception of N.S.W. As soon as an indication is given of agreement to the minutes as presented, work will proceed on the new Federal Constitution.

FEDERAL QSL BUREAU

The Ravenshoe Radio Club (Italy) organised a field day from June 25/27. Their station was situated on the five miles off-shore from Island of Saron Refinery and the station signed ID1DA on 23 Mts. to 22 Mts.

The Municipal Commission de Turismo at Aveiro, Portugal, has made a nice award certificate to Australia, contacting two Aveiro stations on any band after 1st January, 1968. Full details from this Bureau.

The N.R.L.L. (Norway) established a club station, ID40, in the C.C.I.L. Contest, a contest held in Oslo during June and July. A club station was installed, working e.c. and a.s.b. on all bands with the call sign - LAITU.

The Illinois C.W. Contest, sponsored by the Illinois C.H.C. Chapter No. 17, is scheduled to take place from 12th August to 22nd August. Exchanges are Number, RST, and Country. Each QSO counts one point and multiplier is the number of Illinois counties worked. Awards to the highest scorer in each country. Logs to KX2AB, postmarked 1st September or earlier.

A few copies of the rules of the 12th European DX Contest, staged by the D.A.R.C. and scheduled as under, are available from this Bureau.

C.W., Zero G.M.T., 17th Aug., to 24Z, 14th Aug.

Phone Zero G.M.T., 19th Sept., to 24Z 11th Sept.

Ray Jones VK3RJ, Manager.

Although the attendance was down at the June meeting, the N.S.W. Division of the W.I.A. held at Wireless Institute Centre, Crows Nest, on Friday evening, 24th, those who were there had the pleasure of listening to one of the most interesting - and certainly the most humorous - talks it has been our pleasure to hear.

President Tom O'Donnell VK3OD occupied the chair and introduced Mr. K. Langford-Smith, who, with his wife, conducts the Marcella Mission Farm for Aboriginal Children at Kellyville, on the north-western outskirts of the Sydney metropolitan area.

Incidentally, Mr. Langford-Smith's only connection with Amateur Radio is that his brother was the editor of the Radiotron Designers' Handbook, well known to most Amateurs.

The lecturer had been a medical missionary in Arnhem Land for several years from 1930, when conditions in that part of the world were decidedly wild and woolly - and had pioneered the use of aviation in the first flying medical service in that area. Over the years, communications ranged from aboriginal nose-sticks, homing pigeons, to pedal wirelases, and transport from camels, model T Ford, to an old Gypsy motor aircraft. The latter was often repaired with tin snips, nuts and bolts from the Ford, and at one time the fabric was patched with the lecturer's shirt.

For an hour the audience was regaled with anecdotes that produced frequent bursts of laughter, and later the President, as well as the members of the audience (Ivan Agnew VK3IAH), both expressed the feelings of those present by hoping that we would have the pleasure of hearing Mr. Langford-Smith again.

The Councilor, Percy Hanly VK3APQ, submitted the minutes of the recent Federal Convention, held in Brisbane over Easter. After the minutes had been read, the minutes, after which they were received by the meeting and left to Divisional Council to deal with. The most controversial section of the minutes dealt with the proportional voting by Divisions in connection with the proposed new Constitution. The matter was referred to the Council, and the Constitution Committee was informed that the Constitution Committee would be discussing this matter in the near future.

Eleven applicants were admitted to Institute membership, as follows: Full - K. E. Brown, R. Waller VK3EER, T. O'Neil VK3FO, P. L. Buchmann VK3ZF, Associate - Mr. Knight, B. North, G. Hines, C. Mackie, H. D. Lindell, M. Caratti, F. E. Aveling. With VK3 Divisional membership the highest on record, almost reaching 1967. For the month the approximately 100 names have had to be deleted from the roll because of failure to come forth with the necessary subscription. This means, of course, that these tardy characters will now lose all benefits of membership, and, once lost, these take some time to become organised again.

Overseas visitors welcomed during the evening were W5FYE and W5WFF, while several of our Hunter Branch friends also made the trip down.

The sympathy of all members was tendered to Doc Miller VK3EN in the loss of his 14-year-old son, Robert, a member of the Royal Australian Navy, who lost his life in a car accident in Brisbane during the month.

The chairman informed the meeting that Cyril Henderson VK3HJ had been co-opted to Council to fill the vacancy created by the resignation of Mr. Ken Collier VK3JAN. Council was now up to its full strength of seven members.

Councilor Stan Dogger VK3EED has been appointed Communications Officer, and would like to hear from anyone willing to act as Duty Engineer for the duration of the month at VK3W1. His telephone number is 55-1383.

Harold Burdett VK3AAH, Education Officer, said that during the month of June, the VK3EZF had the most fixed station/mobile

Amateur Radio demonstration for the benefit of the Pendle Hill Church of England Men's Club, and this was most appreciated by the club members. Harold also gave a pat on the back to the organisers of the 12th European DX Contest, which was held during Queen's Birthday week-end. Although in existence for only three months, this club had made an excellent job of running its first function. A report of this event appears elsewhere in these notes.

It would appear that a decision of last year's Divisional Council - to provide a memorial library with funds donated by the late John Pugh VK3WJ - should have become a reality by the time these notes appear in print. The President reported that he had obtained, a suitable quotation and the work would commence almost immediately. The cabinet will be looking for a suitable site, and this will enable members to see what is available, at the same time ensuring that books and magazines will not be removed by "cotton-pickin' fingers" during the absence of the librarian.

Ed Molan VK3SG, QSL Officer, reported that 1780 cards had been received and 2504 dispatched for the month. This number of outwards cards was the greatest since 1964.

During a short presentation at the meeting, Phil Irvine VK3VPI showed a film of the last combined VK3/VK1 "Famfest", held at Phillip Island, near the bottom of the bay. It had been shown on T.V. stations in Brisbane and northern N.S.W., and was sent to us by Eddy VK3BN. A similar combined family gathering is set down for 26th November next, and it is to be hoped that it will be even more successful than the last.

Old-timers were pleased to see Dick Dove VK3EP at the June meeting. He had been inactive for about 13 years and celebrated his 75th birthday on 4th June. Dick was the monthly competition for the overseas callbook. Dick held the office of Divisional Secretary for a number of years. His last meetings were held at Science House.

The Executive of the Institute of Radio and Electronics Engineers (Australia) advised they were making a donation of a large number of "CQ" and "QST" magazines for our library. This is a very generous gesture and merits the thanks and appreciation of all.

While on the subject of donations, our Morse Tape Service has issued an appeal for used tapes in good condition. Anyone wishing donate tapes to this popular and worthwhile service is asked to send them to the Supervisor, Eric Hodgkins VK3EH, Mangrove Road, Narara, N.S.W., or they may be left at Wireless Institute Centre 14 Atchison Street, Crows Nest.

Reference was made to those who had returned creditable results in this year's John Meyle Memorial Field Day Contest. Arthur Burdett VK3VH had the highest score - a six-hour period; Jan Oostervren VK3EJO, David Russell VK3BEC and Susan Brown VK3EJ were working under the call sign VK3IATZ/P, received a Merit A award for highest score in the low power, multi-operator section. Then, of course, we have those busy "bodies" - Harold Burdett VK3AAH, Sid Molan VK3SG, Mac MacNaughton VK3ZN, David MacNaughton VK3ZVW, Laurie Cartwright VK3ZVW, and Andrew Anderson VK3ZVW. For man VK3ZCF, Al Williams VK3ZAL - who between them amassed the score of 3889 points. The highest on record for this contest was heard on the gravestone that Laurie Cartwright, being the only boyman in the group, was the only one to have a wife working with him. This was a very good thing, as the antenna into position, and that much the success of this part of the operation was due to his efforts.

During the main events in the VK Contest calendar, the Remembrance Day Contest, is with us this month, on the 12th and 14th. May we urge our members again this year to get into this event and be sure to enter your logs. If your Division is to have any chance at all, many have more support from its members than has been the case in the past.

VEWY ENGINEERS COMMISSIONS COASTAL RADIO STATION

For several weeks between April and June the early morning 80 metre net, known as the Goon Show, was without one of its regular features. We refer to Bill Jenvey VK3ZO, otherwise known as "Willoughby Will Answer" from his affiliation with the Goons. Bill is a

SILENT KEY

It is with deep regret that we record the passing of:

VK3XD - Dick Dowling.

VK6RW Bob Muir

VK6ZBF - Rodney Burke.

well-known c.w. operator, and nothing daunts him more than an excuse to "round the beam". He is also on the panel of engineers who assist at VK2WFL broadcasts.

Before his retirement in 1984 from the position of Chief Engineer at Overseas Telecommunications Commission, Bill had recommended that a new coastal radio station be erected at Cape Schanck, Victoria, to house VIM, which was being operated from Melbourne, with receivers at Rockbank and transmitters at Fliskville. As a result of his report on this project, he was thrust out of his retirement to commission the new station, and it is pleasing to report that his efforts have been crowned with success.

VK2 DIVISION

This month there are a few surplus items besides the usual stock of new equipment.

One only Heathkit DX40 Transmitter kit. Ready to assemble, c.w. or a.m. (80, 40, 20 and 10 metres). \$60.00

One only AR88 Receiver, 540 Kcs. to 32 Mcs. Good condition. \$170.00 (or offer).

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Three only Type Y1. Regulated Power Supplies, which suit BC221 frequency meters. \$10.00. (The above prices f.o.r. Sydney). Crystals: 3720, 3780, 3800, 3885, 3990, 3995 Kc., \$1 each or 5 for \$4. (4 mc. range will be listed next month.)

Inquiries to Radio Equipment Store, Wireless Institute Centre, 14 Atchison St., Crows Nest, N.S.W.

LECTURE TAPES

These are available from the VK2 Division free of charge, except on postage both ways. A tape and slides will be sent upon request. Note the value of postage and include this value in 4 cent stamps with the tape when you return it. All inquiries to Education Officer, 14 Atchison St., Crows Nest. At the moment there are 37 tapes in the library. Each month in this column five tapes will be listed. A complete list is to be found in a copy of the "Amateur Guide" (a VK2 Division Publication).

No. 1. Translators, 2 hours, 8 slides (VK2AAH).

No. 2. Aircraft Navigational Aids, 27 minutes, 27 slides (Peter Griffin).

No. 3. V.O.R., 1 1/2 hrs., 8 slides (Peter Griffin).

No. 4. Phasing Type S.s.b. (a.s.b.-1), 1 1/2 hrs., diagrams (VK2AC/VK2JR).

No. 5. Master Oscillators, 1 hr., 24 slides (VK2JR).

AMATEUR GUIDE

A reminder that there are no complete copies of the above available at the moment. They are out of print and it is not expected that any further reprint will be made this year. Those who already have copies are reminded that the 4th sub-section will be available toward the end of this year. Watch this column for details.

Bill's recommendation had been that a move nearer the coast would give a much better signal coverage for ships in this area, and this had now been proved by results. The station is required to overlap the coverage of the Adelaide, Sydney, Melbourne, and excellent signal strengths have been reported by shipping throughout the area.

Three transmitters are housed in an air-conditioned building, one of them having a power of 2 k.w. into the antenna on the medium maritime frequency, and another 1 k.w. into each of the other two maritime bands on both frequencies and is used as a standby. The station is also equipped with a diesel emergency power supply.

The main medium frequency aerial is an insulated 150 ft. steel mast which is itself the radiator, and on the 2 Mc. band, vertical fans are used to obtain coverage in several frequencies. On high frequencies, "Wells" gap quadrants are employed, and these cover a band plus or minus 10% referred to the centre design frequency, with a s.w.r. of less than 3:1 and an omnidirectional radiation pattern.

During preliminary tests the 500 Kc. transmission was received in Auckland (N.Z.) at 1600 Kc. and in QSA at the location at Fliskville 60 miles west of Melbourne.

The Cape Schanck station was officially opened on 3rd June by the Postmaster-General (Mr. S. H. Gordon) in the presence of a distinguished gathering.

An interesting sidelight to this story is that Bill's father, in 1901, was carrying out experiments in radio communication with the Melbourne Post Office, and it is indeed a coincidence that his most distant contact was with the late St. George, which at the time was off Cape Schanck.

SUCCESSFUL FIELD DAY

Overcast skies and a cold wind did not dampen the enthusiasm of those who attended the Nepean District Amateur Radio Club's first field day at St. Mary's on Sunday, June 10. Registrations were recorded, with a total attendance, including XYLs, YLs and harmonics, of 71. The Club's President (Miss VK2MFP) has supplied the following information on the day's activities:

The first event was a mobile scramble, in which the contestants were allowed an hour to travel 10 miles to air-log the field day area. Prizes were awarded to the top scorers in the h.f. and v.h.f. divisions, the respective winners being VK2JY and VK2JH.

Four mobile events were staged during the day, a refreshing touch of showmanship being injected into these events by the introduction of a Le Mans "start" procedure. The winners were at first somewhat baffled by this procedure, but by the time of the last event were providing spectators with the sight of their spin, through gravel, etc. The other events were conventional hidden transmitter hunts and the one event was a continuing fox hunt.

A pedestrian hidden transmitter hunt proved that these events are very popular but are becoming the forte of the younger (and fitter) competitors. (How about an "old buffers" event at field days?)

Novelty events for ladies and children were keenly contested, particularly the latter event. This was a medley event, in the final stage of which each lady had to inflate a balloon until it burst, immediately after having bowed down to a crack in the wall!

An interesting backdrop to the day was a point-to-point communication net manned by the Penrith Civil Defence. This was the first known occasion on which the Civil Defence and the Amateur Service had co-operated so closely, and this point being remarked on by the Divisional President, VK2OD, during his address.

Prizes were donated by A.W.V., Fairchild, O. Z. Lempiers, Electro-Pac, and the Mullard, Aerofast, I.R.C., Roland Grivas, W.I.A. (N.S.W. Division), and the Nepean District Amateur Radio Club. Each registered person was presented with a folder of pamphlets or booklets donated by A.W.V. The club wishes to express its thanks to all these donors.

72, Ivan VK2JAM.

DINNER DINNER

A new record was established at the July meeting of the Branch when 48 members and visitors assembled to hear the two-part lectures on diverse topics. Ian ZEIF continued his theme of last meeting by presenting the "simplified" "proposed" conversion of two-part operation. This, Ian explained, is easily built from ice-cream cans—the chassis that is—but he covered the rest of the subject in great detail. Presenting a detailed circuit and constructional details he had many of the audience thumping their heads at the Bulletin and construction are only bogies and, if the details

he described are followed, no difficulty should be experienced in getting the unit to give excellent results for the most thumb-handed of us. More will be heard of this excellent project and those experimenting in the field will be happy to help the new constructors who wish to have a lash at it. Ian's notes will no doubt be available on request. That was the first of the two-part lectures and measures he has undertaken to soundproof and air-condition the shack at the Westlake Aerob. The weather of the week of the two-part lectures was not so favourable as the tall demands to assist those seeking the ultimate in soundproof comfort and was able to answer the questions of those who required further details.

Those following his suggestions should have no difficulty in putting a really first-class signal on the air. Bill IXR was the first to put his name down for the new famous belted whip aerials using which he has been able to make the mobile DXCC since February this year. Again with a sheet of drawings outlining all the details he told how simple it is to get a really efficient radiator for the mobile rig in the car. Bill has reached a peak in perfection of his mobile equipment so much so that his signal reports are practically identical to the car as from the home station. Once again a really mobile rig is possible. In the future, you are contemplating high efficiency for mobile operation.

At the conclusion of the lectures, Gordon MacLachlan, who donated the hall and the place for their excellent presentation and this was heartily acclaimed by the audience. President Ian ZEIF then presented the prizes and the function in presenting certificates recently won for progress in both operating and construction. Colin O'Leary and Philip Brown, who were the Youth Radio Schools, were awarded their Elementary Radio Certificates while Susan IBSS accepted the John Moyle Memorial award for the best female constructor. The power field station which was jointly manned by herself, Jan IBJO, David IBSC and Paul IBSC, was the only one to be awarded. The young people deserve primitive praise for their efforts with relatively primitive gear aspect. It was a very successful day for the club and was accompanied with a motor mower coupled to car generator. This power source served both transmitters and the lights at VK2JY. The car was the property of Mount Manly, near Cardiff.

Some rarely heard calls have been on the air during the month and the new weather has been a help. The calls have been from George and Harry IAFA working on bands 80 to 10 metres. George has a fine sideband signal and Harry IAFA has a fine signal on 10 metres and Harry makes do with a.m. phone on 40. Jack IBKQ has been forced to go QRT while he takes a spell in hospital and all members wish him a speedy recovery and a return to the duck talkers' brigade. Les IBZ now has a modern aerial from the S.A. to go with the new sideband rig and the Vainall is expected that he will be among the rare ones mobile by now. Max IBMK, having completed the transmitter, is now working on the rig and has instant success and landed some W's at the first attempt. He says the report was 8 dB and it looked as if it was a good one. He may be returning—at least briefly. As far as the costly city men are concerned, Civil Defence is taking up much of their time and the city men are not so much interested in the Dumping were shyly handled by Chris's crew. Ray Robinson has cause for jubilation in being able to defend his territory with a limited ticket and be almost ready to go on the air when the authority arrives. One member who has been very successful in being most pleased to learn recently that a major fault in the transceiver could be repaired with a new fuse—was not there. There are many mutterings about left-footed mess amateurs since the results of the last examination and some candidates are wondering if "left" to mean "right". The "left" in the "tag" was taken literally in the advertisement for staff. Don IBAK, a visitor from afar, has been very successful in being advised to watch the Bulletin for the latest reports. The event will be held on the October long week-end with the Field Day at Bolton. The event will be held on the October and almost at the end of Lionel's aerial. And to accommodate the meeting successfully an arrangement has been made for the Bulletin which allows for two meetings—one on the first Friday, and another on the last. So which of the Bulletin can't be caught? See you at both. 72, IAKC.

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Completely wired, Type F & F.T.M.C. Unit. Contains 34 key switches, 28 P.M.G. Plugs, 34 Drop Latches, hand-operated Generator for ringing. Size 20 in. wide, 18 in. deep, 21 in. high. Weight 50 lbs. Price \$55.

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3 uF, 10V., pigtail ... 10c ea., \$1 dozen
10 uF, 10V., pigtail ... 10c ea., \$1 dozen

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1/2 x 5 x 5 inch with matching lid, air vents each end. Ideal for battery charger, etc. Ungalvanized, new. \$1. Discount for quantity.

DURAL TUBING

1/2 inch Tubing, 8 ft. lengths 38 ft. for \$3 or 60c per 6 ft. length.

NEW TOGGLE SWITCHES

S.P.S.T. 5/- each. D.P.D.T. 10/- each.

POTENTIOMETERS

Wire Wound, 4 Watts, 1 1/2 inch diameter. Sizes available: 8, 10, 25, 50, 100, 250, 500, 1K, 2K, 10K, 50K ohms. 4/- each.

NEW CHANNEL LOCK PLIERS

Type 337W ... 20/- each
Type 336 End Cutters ... 20/- each

POWER TRANSFORMERS

1000 180-0-180V, 30 mA., 6.3V. 1.75A. 37/8 \$3.75
1200 220V-0-220V, 80 mA., 6.3V. 2A. 45/8 \$4.50
2000 Voltage Doubler, 300, 250V. 57/8 \$6.75
G.C. 80 mA., 6.3V. c.t. 2.25A. 57/8 \$6.75
5004 Voltage Doubler, 500, 315V. 57/8 \$6.75
G.C. 125 mA., 6.3V. c.t. 2.5A. 57/8 \$6.75
2007 Voltage Doubler, 310, 285V. 57/8 \$6.75
G.C. 100 mA., 6.3V. c.t. 4A. 57/8 \$6.75
220-0-220V, 60 mA., 6.3V. 2A., 5V. 3A. 37/8 \$3.75
220-0-220V, 100 mA., 6.3V. 3A., 5V. 3A. 37/8 \$3.75
220-0-220V, 125 mA., 6.3V. 3A., 6.3V. 45/8 \$4.50
2A., 5V. 3A. 45/8 \$4.50

BATTERY CHARGERS

Dual, c/w. Meter in Metal Hammarline Case
5 volt 4 amp., 12 volt 4 amp. 157/8 \$15.75
6 volt 6 amp., 12 volt 6 amp. 217/8 \$21.75

DISPOSAL METERS

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Another new voice, another new piece of gear, this time it's Carl OKW, and the aforementioned piece of gear is, I understand, one of those long-necked birds. No, no, not an ostrich, a Swan. I told you before, those boys down at Narragin were busy bees, not only on the d.c. bands, but the a.c. as well. A couple of new 32 Mc. base stations were recently installed.

All this talk of birds and bees, crumbs, next thing you know I'll be writing a "lively hearts" column.

Some of you may recall that man of many call signs, "Big John," WYPR/MS on the vee seal "Sea Search," well, he recently returned to this state for some five or six weeks and journeyed to Carnarvon. Such is the fatal charm of this Widdoway State.

A report to hand from one of my spies, who must remain unnamed for fear of reprisals in the form of extra homework, informs me that the C.E.S.C. Radio Club has resumed normal (?) operations, after their Northern Safari and are now settling down to a profound study of the Triode valve. Keen interest is also being shown by the newly-formed group in the neighbouring girls' school.

Laurie GEZA also tells me that the group at Wesley College is also progressing favourably. It is also within the realm of possibility that yet another Youth Radio Club may be formed in the near future, this time as far afield as Carnarvon. I am very much interested in this aspect of our hobby. Good luck, O.M., hope it turns out some more call signs very soon.

Despite the strenuous efforts of a number of interested Hammers, it seems that W.C.E.S.C. in VK8 is slowly but surely grinding to a halt. The Sunday morning call-back has been discontinued and our sincere thanks must go to Brian 6V for persisting so long against such long odds. Looking for the silver lining, we must consider ourselves rather lucky that natural disasters are not so prevalent in this state as they are elsewhere. Should disaster threaten I feel certain that Hams in this state will, if permitted, acquit themselves just as creditably as they have in the past.

Is this a sign of things to come, or just the impolite brush-off I heard recently on the

band: "—sorry, O.M., but my receiver does not handle a.m. Sounds like a serious malfunction of the half lattice germanium wafer to me."

One fellow who successfully combines business with pleasure is Eric 6VM, who has very neatly contrived to fit some mobile gear into his wagon, and waggles a whip on the rear end also. When circumstances (jobs, that is) permit, he joins the club, and was clocked on 40 metres each Wednesday. As a bonus, he has also influenced his officer, tank, to become interested in Ham radio. It was good to see them both at a recent meeting, too.

Heartiest congratulations to those successful candidates at the last A.O.C.P. exam—good work, those of you who were! As you are, lucky, don't go cold on the project imagining that you are a Robinson Crusoe. Many have been in a similar position and there will be many more in the future. Keep on studying, and the end result will be well worth while, believe me.

Saw Len 6LS at the recent Australian Post Office electronics exhibition, put the awed public in possession of some of the secrets of telecommunication. Couldn't get near enough to see his video-taped interview, but his modulation was loud and clear. See you in the R.D. Len, I hope.

The Christmas lads and boys were not favoured by over-good conditions during their recent week-end Ham fest, but operator Allen corked into a beaut gaggle, sorry, many roundabouts, and the Sunday club was on 40 metres. Apart from the six or seven VK8's, a couple of ZL's managed to get into the act and most of Ceremonies Bob 6BE was kept pretty busy.

I understand that that small cloud of dust on the horizon near Wimmera was caused when Col 6CJ forcibly ejected a family of red-back spiders and sundry pests in order to fire up his rig on 40. Just getting ready for the you-know-whats in August? By the way, where is brother Ray 6WU? We've missed you from the Schools' Broadcast (Wednesday asked to the uninitiated) O.M.

Quite a number of new calls appearing on the 32 Mc. f.m. nets, so my spies inform me. The fact of Ham activities is one which has received quite a lot of adverse criticism from quarters, its opponents claiming that going on the breeze with a converted two-way is where Ham radio ends in wither. I feel that the school of thought is that at least they are on the air and not just ineffectively holding down a call sign by simply paying a kite. What do you think?

By the time you read these notes, Lionel 6LM should have commenced his second issue of long or previous holiday. If you have any guide, listen for him operating portable as well as from his home QTH.

Well, happy listening conditions, see you further down the log. 73, Ross VK8DA.

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A.C. A.: 2.5, 10, 30, 100, 300 mA.
OHM: RX1, RX10, RX100, RX1000 (min. 0.5 ohm and max. 50 M Ω ohm).
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D.C. A.: 50 μ A; 0.5, 5, 50, 250 mA.
OHM: RX1, RX10, RX100, RX1k (min. 1 ohm and max. 5 M Ω ohm).
DB: — 30 to plus 62 db.
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A.C. A.: 3, 12 A.
OHM: RL 10R, 100R, 1000R (min. 2 ohm and max. 10 M Ω ohm).
DB: — 10 to plus 17 db., 0 to plus 23 to plus 62 db.
Batteries: 1.5v. (UM-2) \times 2 and 22.5v. (BL-015) \times 1.
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D.C. V.: 0.25, 2.5, 10, 50, 250, 1000v. (5k ohm/v.).
A.C. V.: 2.5, 10, 50, 250, 1000v. (5k ohm/v.).
D.C. A.: 50 μ A; 0.5, 5, 50, 250 mA.
OHM: RX1, RX10, RX100, 50M Ω (min. 1 ohm and max. 50 M Ω ohm).
DB: — 10 to plus 36 db.
L.I.: 30, 2, 0.2 mA.
Batteries: 1.5v. (UM-3) \times 1 and 22.5v. (BL-015) \times 1.
Size: 3 1/4 in. \times 3 1/4 in. \times 1 1/4 in.
Weight: 14.4 oz.

Price: \$22.50 plus S.T. 12 1/2%



WARBURTON FRANKI

220 PARK ST. SOUTH MELB., VIC. PHONE 30 lines 69-0151



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